

What is claimed:

1. A method for treating cancer comprising administering chlorotoxin or a chlorotoxin derivative in combination with at least one chemotherapeutic agent.
- 5 2. A method according to claim 1 wherein the chlorotoxin or chlorotoxin derivative is administered prior to administration of the chemotherapeutic agent.
3. A method according to claim 1 wherein the chlorotoxin or chlorotoxin derivative
10 is administered subsequent to administration of the chemotherapeutic agent.
4. A method according to claim 1 wherein chlorotoxin or chlorotoxin derivative is administered simultaneously with the chemotherapeutic agent.
- 15 5. A method according to claim 1, wherein the chemotherapeutic agent is selected from the group consisting of alkylating agents, purine antagonists, pyrimidine antagonists, plant alkaloids, intercalating antibiotics, aromatase inhibitors, anti-metabolites, mitotic inhibitors, growth factor inhibitors, cell cycle inhibitors, enzymes, topoisomerase inhibitors, biological response modifiers, anti-hormones and anti-androgens.
- 20 6. A method according to claim 1, wherein the chemotherapeutic agent is selected from the group consisting of BCNU, cisplatin, gemcitabine, hydroxyurea, paclitaxel, temozomide, topotecan, fluorouracil, vincristine, vinblastine, procarbazine, dacarbazine, altretamine, cisplatin, methotrexate, mercaptopurine, thioguanine, fludarabine phosphate,
25 cladribine, pentostatin, fluorouracil, cytarabine, azacitidine, vinblastine, vincristine, etoposide, teniposide, irinotecan, docetaxel, doxorubicin, daunorubicin, dactinomycin, idarubicin, plicamycin, mitomycin, bleomycin, tamoxifen, flutamide, leuprolide, goserelin, aminoglutethimide, anastrozole, amsacrine, asparaginase, mitoxantrone, mitotane and amifostine.
- 30 7. A method according to claim 1, wherein the cancer is a neuroectodermal cancer.
8. A method according to claim 1, wherein the cancer is selected from the group consisting of lung cancer, bone cancer, liver cancer, pancreatic cancer, skin cancer, cancer of

the head or neck, cutaneous or intraocular melanoma, uterine cancer, ovarian cancer, rectal cancer, cancer of the anal region, stomach cancer, colon cancer, breast cancer, uterine cancer, carcinoma of the fallopian tubes, carcinoma of the endometrium, carcinoma of the cervix, carcinoma of the vagina, carcinoma of the vulva, Hodgkin's Disease, cancer of the esophagus, 5 cancer of the small intestine, cancer of the endocrine system, cancer of the thyroid gland, cancer of the parathyroid gland, cancer of the adrenal gland, sarcoma of soft tissue, cancer of the urethra, cancer of the penis, prostate cancer, chronic or acute leukemia, lymphocytic lymphomas, cancer of the bladder, cancer of the kidney or ureter, renal cell carcinoma, carcinoma of the renal pelvis, neoplasms of the central nervous system (CNS), 10 neuroectodermal cancer, spinal axis tumors, glioma, meningioma and pituitary adenoma.

9. A composition for treating cancer comprising chlorotoxin or a chlorotoxin derivative and at least one chemotherapeutic agent.

15 10. A composition according to claim 9, wherein the chemotherapeutic agent is selected from the group consisting of alkylating agents, purine antagonists, pyrimidine antagonists, plant alkaloids, intercalating antibiotics, aromatase inhibitors, anti-metabolites, mitotic inhibitors, growth factor inhibitors, cell cycle inhibitors, enzymes, topoisomerase inhibitors, biological response modifiers, anti-hormones and anti-androgens.

20 11. A composition according to claim 9, wherein the chemotherapeutic agent is selected from the group consisting of BCNU, cisplatin, gemcitabine, hydroxyurea, paclitaxel, temozomide, topotecan, fluorouracil, vincristine, vinblastine, procarbazine, dacarbazine, altretamine, cisplatin, methotrexate, mercaptopurine, thioguanine, fludarabine phosphate, 25 cladribine, pentostatin, fluorouracil, cytarabine, azacitidine, vinblastine, vincristine, etoposide, teniposide, irinotecan, docetaxel, doxorubicin, daunorubicin, dactinomycin, idarubicin, plicamycin, mitomycin, bleomycin, tamoxifen, flutamide, leuprolide, goserelin, aminoglutethimide, anastrozole, amsacrine, asparaginase, mitoxantrone, mitotane and amifostine.

30 12. A composition according to claim 9, wherein the cancer is a neuroectodermal cancer.

13. A composition according to claim 9, wherein the cancer is selected from the group consisting of lung cancer, bone cancer, liver cancer, pancreatic cancer, skin cancer, cancer of the head or neck, cutaneous or intraocular melanoma, uterine cancer, ovarian cancer, rectal cancer, cancer of the anal region, stomach cancer, colon cancer, breast cancer, 5 uterine cancer, carcinoma of the fallopian tubes, carcinoma of the endometrium, carcinoma of the cervix, carcinoma of the vagina, carcinoma of the vulva, Hodgkin's Disease, cancer of the esophagus, cancer of the small intestine, cancer of the endocrine system, cancer of the thyroid gland, cancer of the parathyroid gland, cancer of the adrenal gland, sarcoma of soft tissue, cancer of the urethra, cancer of the penis, prostate cancer, chronic or acute leukemia, 10 lymphocytic lymphomas, cancer of the bladder, cancer of the kidney or ureter, renal cell carcinoma, carcinoma of the renal pelvis, neoplasms of the central nervous system (CNS), neuroectodermal cancer, spinal axis tumors, glioma, meningioma and pituitary adenoma.

14. A method for detecting the presence of cancer in a patient comprising 15 administering a detectable amount of labeled chlorotoxin or chlorotoxin derivative.

15. The method according to claim 14, wherein the cancer is selected from the group consisting of lung cancer, bone cancer, liver cancer, pancreatic cancer, skin cancer, cancer of the head or neck, cutaneous or intraocular melanoma, uterine cancer, ovarian cancer, rectal 20 cancer, cancer of the anal region, stomach cancer, colon cancer, breast cancer, uterine cancer, carcinoma of the fallopian tubes, carcinoma of the endometrium, carcinoma of the cervix, carcinoma of the vagina, carcinoma of the vulva, Hodgkin's Disease, cancer of the esophagus, cancer of the small intestine, cancer of the endocrine system, cancer of the thyroid gland, cancer of the parathyroid gland, cancer of the adrenal gland, sarcoma of soft tissue, cancer of 25 the urethra, cancer of the penis, prostate cancer, chronic or acute leukemia, lymphocytic lymphomas, cancer of the bladder, cancer of the kidney or ureter, renal cell carcinoma, carcinoma of the renal pelvis, neoplasms of the central nervous system (CNS), neuroectodermal cancer, spinal axis tumors, glioma, meningioma and pituitary adenoma.

30 16. The method according to claim 14, wherein the label is a radiolabel.

17. The method according to claim 16, wherein the radiolabel is selected from the group consisting of ^3H , ^{14}C , ^{18}F , ^{19}F , ^{31}P , ^{32}P , ^{35}S , ^{131}I , ^{125}I , ^{123}I , ^{64}Cu , ^{187}Re , ^{111}In , ^{90}Y , $^{99\text{m}}\text{Tc}$ and ^{177}Lu .